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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,701	03/10/2004	Dmitry Voloschenko	IS01559 AP	4323
22917	7590	12/14/2004	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			MARTINEZ, JOSEPH P	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/797,701	VOLOSCHENKO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Joseph P. Martinez	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3-10-04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. ____   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3-10-04</u> .   | 6) <input type="checkbox"/> Other: ____                                     |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the laser" in line 4. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 8 rejected under 35 U.S.C. 102(b) as being fully anticipated by Taniguchi et al. (5162928).

Re claim 1, Taniguchi et al. teaches for example in fig. 2 and 3, a head-up display containing a plurality of elements optically coupled along an optical path, the display comprising: an image source (2 and 10, col. 4, ln. 23-27) that emits a visible light (4) for generating an image (col. 4, ln. 23-27); a means for diffusing light (3) that receives the visible

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light from the laser scanner to project the transmitted generated image thereon (col. 4, ln. 22); and a substantially transparent element (5) for producing a virtual image (col. 4, ln. 40-44) from the generated image from the means for diffusing light.

Re claim 2, Taniguchi et al. further teaches for example, the means for diffusing light provides gain (col. 5, ln. 57-65, wherein the office interprets increasing the quantity of light to disclose the claimed limitation) to the image thereon.

Re claim 8, Taniguchi et al. further teaches for example in fig. 2, optical elements (6 and 5) disposed in the optical path after the means for diffusing light (3), wherein an exit cone (4 at  $\lambda_2$ ) of light from the means for diffusing light is substantially captured (wherein the office interprets fig. 2 to disclose the light beam 4 to be captured by the hologram 5) by an acceptance angle of the optical elements.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 3, 9, 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Matsumoto et al. (5748377).

Re claim 3, Taniguchi et al. teaches the head-up display as disclosed above, including the substantially transparent element is a holographic element (col. 3, ln. 63-66).

But, Taniguchi et al. fails to explicitly teach the holographic element provides magnification for the image thereon.

However, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. with the holographic element of Matsumoto et al. in order to provide an enlarged view.

Re claim 9, Matsumoto et al. further teaches for example, the scanner is configured to pre-distort the generated image to compensate for distortions in the optical path (col. 5, ln. 22-24).

Re claim 10, Matsumoto et al. further teaches for example in fig. 12, the means for diffusing light (34) is configured in a non-flat shape (col. 6, ln. 16-17) to compensate for aberrations in the optical path (col. 6, ln. 22-23 and col. 4, ln. 19-21).

2. Claims 4-7, 11, 12, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Stringfellow (6359737).

Re claims 4 and 11, Taniguchi et al. teaches for example in fig. 2 and 3, a head-up display for a vehicle containing a plurality of elements optically coupled along an optical path, the display comprising: a laser scanner (2) that emits a raster scan (col. 4, ln. 4-8) of visible light (4) to generate an image; a means for diffusing light (3) placed in an intermediate plane of the optical path that receives the visible light from the laser scanner to project (col. 4, ln. 22) and apply gain (col. 5, ln. 57-65, wherein the office interprets increasing the quantity of light to disclose the claimed limitation) to the image generated thereon; and a holographic element (5) for producing a virtual image from the generated image (col. 4, ln. 40-44), the head-up display being operable to project the image to a driver (7) within the vehicle (col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach using a windshield of a vehicle.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, using a windshield (16) of a vehicle to provide a virtual image (18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Re claim 5, Taniguchi et al. in view of Stringfellow teach the head-up display as disclosed above.

But, Taniguchi et al. in view of Stringfellow fail to explicitly teach the means for diffusing light and a driver's viewing angle are related by the Bragg condition for the holographic element.

However, the office interprets the Bragg angle to be defined as the angle at which the reflection occurs, as is well known in the art. Furthermore, Taniguchi et al. teaches for example, the beam combiner comprising a hologram 5 and the driver 7 being able to view the diffused light (fig. 2). Therefore, the office interprets the teachings to disclose that the means for diffusing light and a driver's viewing angle are related by the Bragg condition for the holographic element.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow to include a relation by the Bragg condition for the holographic element between the means for diffusing light and a driver's viewing angle in order to show that the driver is able to view the diffused light.

Re claims 6, 7, 12 and 15, Taniguchi et al. further teaches for example in fig. 2 and 3, the substantially transparent element (5) is a holographic element (col. 3, ln. 65) that incorporates the means for diffusing light (3) which operates to reflect the image to within the vehicle (col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach the element is configured to be located below or on a surface of a windshield of a vehicle in the optical path to project an image from the laser scanner to the windshield.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, the element (14) is configured to be located below or on a surface of a windshield (16, wherein the office interprets the element to be below and on the surface of the windshield) of a vehicle in the optical path to project an image from the laser scanner to the windshield.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Re claim 16, Taniguchi et al. further teaches for example in fig. 2, optical elements (6 and 5) disposed in the optical path after the means for diffusing light (3), wherein an exit cone (4 at  $\lambda_2$ ) of light from the means for diffusing light is substantially captured (wherein the office interprets fig. 2 to disclose the light beam 4 to be captured by the hologram 5) by an acceptance angle of the optical elements.



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3. Claims 13, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (5162928) in view of Stringfellow (6359737) in further view of Matsumoto et al. (5748377).

Re claim 13, Taniguchi et al. in view of Stringfellow teach the head-up display as disclosed above, including the substantially transparent element is a holographic element (Taniguchi et al., col. 3, ln. 63-66).

But, Taniguchi et al. in view of Stringfellow fails to explicitly teach the holographic element provides magnification for the image thereon.

However, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow with the holographic element of Matsumoto et al. in order to provide an enlarged view.

Re claim 14, Taniguchi et al. further teaches for example in fig. 2 and 3, the substantially transparent element (5) is a holographic element (col. 3, ln. 65) that incorporates the means for diffusing light (3) which operates to reflect the image to within the vehicle (col. 1, ln. 20-21, wherein the office interprets the teachings to suggest use in a vehicle) in a way to provide a virtual image at a predetermined distance ahead of the windshield (col. 4, ln. 40-44).

But, Taniguchi et al. fails to explicitly teach the element is configured to be located below or on a surface of a windshield of a vehicle in the optical path to project an image from the laser scanner to the windshield.

However, Taniguchi et al. teaches the use of the holographic element 5 to be mounted on a glass or plastic transparent support, and within the same field of endeavor, Stringfellow teaches for example in fig. 1, the element (14) is configured to be located below or on a surface of a windshield (16, wherein the office interprets the element to be below and on the surface of the windshield) of a vehicle in the optical path to project an image from the laser scanner to the windshield.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. to include the windshield of Stringfellow in order to produce a virtual image that is viewable by the vehicle operator without diversion from the outside scene, as taught by Stringfellow (col. 1, ln. 31-34).

Furthermore, within the same field of endeavor, Matsumoto et al. teaches for example in fig. 7, the holographic element (18) provides magnification for the image thereon (col. 5, ln. 25-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Taniguchi et al. in view of Stringfellow with the holographic element of Matsumoto et al. in order to provide an enlarged view.

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Re claim 17, Matsumoto et al. further teaches for example, the scanner is configured to pre-distort the generated image to compensate for distortions in the optical path (col. 5, ln. 22-24).

***Allowable Subject Matter***

Claims 18-20 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art taken alone or in combination fails to anticipate or fairly suggest the limitations of the claims, in such a manner that a rejection under 35 USC 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claim 18.

Specifically regarding claim 18, Taniguchi et al. teaches the state of the art of the head-up display apparatus.

But, Taniguchi et al. fails to explicitly teach a means for diffusing light to project and apply an adjustable gain to the transmitted generated image thereon; and a holographic element receiving and magnifying the image to produce a virtual image therefrom, as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM  
12-8-04

  
Hung Xuan Ding  
Primary Examiner